

Children Karen Ross

A Frank Statement about Vision Screening in Schools

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from

THE CALIFORNIA OPTOMETRIC ASSOCIATION



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CALIFORNIA OPTOMETRIC ASSOCIATION

RESearch studies are available which impartially define the problems and procedures of an adequate vision screening program. There are studies that indicate the need for and significance of such programs. Successful programs are in operation in many counties in California, and these can be observed by those interested in improving their own. Nothing must be allowed to impede the further development or utilization of the best techniques.

The California Optometric Association, representing one of the health care professions intimately concerned with the vision welfare of children, feels it is time to make a statement of policy.

PRINCIPLES

Let us start by recognizing certain basic principles:

- 1) Vision is the most important sense modality for learning in sighted children.

- 2) Vision is a complex process.
- 3) Vision problems may increase stress and decrease achievement.
- 4) Most vision problems can be relieved and corrected by early detection and adequate treatment.

NEED FOR VISION SCREENING

Most authorities agree that it would be desirable to have a complete vision examination made by an optometrist (or ophthalmologist) for each child prior to entering school. This would insure that vision problems would be detected and remediation, where needed, would be instituted to provide each child with the maximum capability to take advantage of his educational opportunities. That this is an ideal, but not easily achieved, goal is admitted. There just is not that amount of professional time available, considering the number of children involved; and

the expense is such as to deter many families from providing this service for their children. Even in relatively wealthy communities less than ten per cent of the children enter school with a complete vision examination. Some form of rapid evaluation or screening of the vision status of each child is necessary to fill this gap.

The California Legislature has recognized this problem and by law has made it the responsibility of the governing board of each school district to provide adequate vision tests for each child. A joint committee of the State Departments of Public Health and Education has made recommendations on how this vision screening may be done.

VISION SCREENING METHODS

The simplest, and most prevalent, test used is some form of the *Snellen test* of visual acuity. With letters or figures of graded sizes it is possible to determine the child's ability to see distinctly at a distance (usually twenty feet). This test fails only those children with vision problems that affect distance visual acuity: myopia, amblyopia and high astigmatism. Problems in the coordination

between the two eyes, hyperopia, organic problems, anisometropia and "reading-distance" problems are not evaluated. In an elementary school population about eight percent will fail this test if the usual standard of 20/40 is used.

The "*plus-sphere*" test is used in some vision screening methods to detect significant hyperopia. Lenses (+1.50 D.S. to +2.50 D.S. have been suggested) are worn by the child while observing a visual acuity chart at distance (twenty feet). If the chart is seen clearly (20/20), the child is assumed to have hyperopia of an amount greater than the plus lens being used. About two percent of the children will fail this test, depending on which plus lens is used. About half of these will be unnecessary referrals and yet the test will miss more than half of those with significant hyperopia.

The "*Cover*" test is used in a few vision screening methods to disclose problems in binocular coordination. There are two parts. First, each eye in turn is briefly covered and uncovered while the child watches a small target. Any movement of either eye is observed. Second, the cover is moved from eye to eye and movements are ob-

served. The success of this test depends on the training and skill of the observer. In the hands of teachers seventeen percent will fail, more than four-fifths of them unnecessarily; in the hands of nurses six percent will fail, more than one-half unnecessarily; in the hands of an optometrist about seven percent will fail, with very few unnecessary referrals.

Teacher observation is recommended by almost all persons writing on the subject of vision screening. In this technique the classroom teacher notes the behavior, appearance, and complaints of pupils relative to the use of their eyes, referring those suspected of having vision problems. Teachers, alerted to this technique by in-service training programs (State recommended procedure), will refer fifteen to twenty percent of the children, more than sixty percent of them unnecessarily. Without this special emphasis they will refer less than four percent, more than half of them unnecessarily.

The *stereoscopic instrument* techniques (American Optical Company Sightscreener, Bausch and Lomb Optical Company School Orthorater, Keystone View Company Telebinocular, and Titmus Optical Company

Vision Screener) all utilize the same principles, mostly the same individual tests, and give very similar results. The tests included are for visual acuity at distance and near, heterophoria (coordination) at distance and near, stereopsis, and color vision. About twenty-three percent will fail the first test, fifteen percent a test and retest. Even with the retest, forty percent of those referred will be unnecessary referrals, and almost half of those who should be referred will be passed.

The *Massachusetts vision test* was designed for vision screening in schools. It includes tests for visual acuity at distance, plus sphere test and Maddox rod test (for coordination) at distance and near. About eighteen percent will fail the first test, twelve percent a test and retest. Even with a retest, twenty-three percent of those failed will be unnecessary referrals, and almost half of those who should be referred will be passed.

The *Modified Clinical Technique* (MCT) is a vision screening method for use in schools by optometrists (and ophthalmologists). The tests include a visual acuity test, an objective estimate of refractive error

(myopia, hyperopia, astigmatism and anisometropia) by skiametry, a cover test at distance and near, and an inspection for organic problems. This technique was thoroughly investigated in The Orinda Study and has proved to be the most efficient and most economical of all screening methods so far devised. About fourteen percent of first graders will fail (seventeen percent of all elementary school children), almost all of whom are correct referrals and will fail almost all the children in need of vision attention.

If we rank the various vision screening methods in order of efficiency:

VISION SCREENING CRITERIA

In order to determine what vision screening method to use it is important to decide first just what it is that you are looking for. Defining a "need for referral" is not a simple task. All agree that good vision is an asset, but, since all degrees of error exist, it is difficult to draw the dividing lines between "permissible normal variation" and "vision problems requiring referral". One thing should be kept in mind: a referral from a screening program should be for further investigation. *The screening does not indicate a need for*

	phi coefficients	% correct referrals found
Modified Clinical Technique	0.95	98%
Massachusetts Vision Test	0.59	55%
Stereoscopic instruments	0.51	56%
Snellen and plus sphere tests	0.41	25%
Snellen, plus sphere and cover tests	0.37	41%
Snellen only		
Teacher	0.40	33%
Nurse	0.37	28%
Teacher and retest by nurse	0.39	23%
Teacher Observation	0.24	48%

vision care, but only indicates a need for further study in a more complete way than can be done by the screening procedure. The decision regarding treatment should be made by the optometrist (or ophthalmologist) who makes a complete examination of the vision condition of the child.

Since the final decision regarding vision care is always in the hands of the optometrists (and ophthalmologists) in the community, it is worth considering what visual conditions *they* think should be referred for further study. Only two studies are published that relate to this problem: one of the opinion of New England ophthalmologists and one of a large sample of optometrists and ophthalmologists throughout the United States. Two facts emerge from a study of these reports: one is that there is considerable variation in these criteria within each profession, and, secondly, that the optometrists are more conservative than the ophthalmologists, that is, they want to study children with smaller deviations in vision. On the average, seventy-five percent of both groups agreed with the definition of a "correct referral" derived by other means

in The Orinda Study. It was from this material that the efficiency ratings shown above were calculated.

One thing is abundantly clear from these and other studies: neither optometrists nor ophthalmologists regard visual acuity as the only factor in defining a refrerrable vision problem. The Snellen visual acuity screening will "pass" significant numbers of children with vision problems who most optometrists and ophthalmologists would agree should be referred.

Since the publication of The Orinda Study ("Vision Screening for Elementary Schools: The Orinda Study" by Blum, Peters and Bettman, University of California Press, Berkeley, 1959) school districts in eight counties in Northern California have instituted programs that follow its recommendations. Letters and statements from teachers, school administrators, public health officials, optometrists and parents have indicated overwhelming support.

The Orinda Study demonstrated that the Modified Clinical Technique of vision screening is the most effective, and least expensive of all of the screening procedures developed

to date.

We insist that available research by both ophthalmology and optometry, and that done in many university reading clinics, indicates that visual acuity testing is not sufficient to determine the child's visual ability to perform in school.

There are ninety-one pertinent references in the selected bibliography in *The Orinda Study*. Studies by Robinson, Betts, Spache and many others in the field of reading emphasize over and over the complex nature of the visual process and the need for more comprehensive vision screening. Lancaster, Scobee, Sloan and many other ophthalmologists have written similarly.

THE POLICY OF THE CALIFORNIA OPTOMETRIC ASSOCIATION

As stated in the beginning of this booklet, we feel it is time to state our position on vision screening of school children:

1. It is desirable for each child to have a vision examination by an optometrist (or ophthalmologist) prior to entering school.
2. Pre-school vision screening programs are desirable, but their nature and the limited

responses of the child at age three or four (at which present programs operate) make a more complete vision testing desirable at school entering time.

3. *If* complete professional pre-school vision examinations are not made on each child, and this does not appear feasible, a comprehensive vision screening program should be available.
4. Visual acuity testing is not sufficient to determine the child's ability to use his eyes successfully and efficiently in school.
5. We will support any effort to improve vision screening in the schools. While we believe the Modified Clinical Technique to be the best method so far developed we do not believe that this is the only way vision screening can be done. Where no screening is being done, the Snellen visual acuity test is an improvement; where the Snellen test is being done the stereoscopic instruments represent an advance; where the stereoscopic instruments are in use the Massachusetts Vision Test would be considered an improvement. The Modified Clinical Technique

is the best so far developed, but we will support any screening method proved to be superior. We pledge our support in the constant effort to upgrade the visual welfare of our children through vision screening.

6. Finally, we will be pleased

to serve on committees on vision screening to assist the administrative officers of a county or district education jurisdiction to improve their vision screening program and obtain the community support essential to its success.



(This Statement Officially Adopted by Board of Trustees, California Optometric Association, at Meeting Held Disneyland Hotel, Anaheim.)

